

# Wildlife Health: West Nile Virus 2003 Necropsy Surveillance Summary

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## **Abstract**

Wildlife biologists, conservation wardens, and the general public submitted nearly 700 specimens to the Wildlife Health Program for West Nile virus (WNV) necropsy surveillance in 2003. Testing was conducted by the Wisconsin Veterinary Diagnostic Laboratory, the Wisconsin State Laboratory of Hygiene, and the Marshfield Clinical Research Foundation (MCRF). Specimen submission was facilitated by the Wisconsin Department of Public Health and the USDA-Wildlife Services hotline staff.

Mosquitoes are the primary vector for WNV transmission. Wisconsin mosquito activity during 2003 occurred from May until early November. Infrequent rains and prolonged hot temperatures were common throughout the state, perhaps causing a decline in mosquito productivity. Plentiful rains occurred throughout much of the state from mid-August through October, and the majority of WNV positive cases were diagnosed during this time.

Corvid birds (crows, blue jays, ravens) were the focus for WNV testing, as they appear to be the bird species most sensitive to WNV mortality, and hence can be indicators of human exposure risk. Results of the Wisconsin 2003 testing found 145 positive crows of 301 tested (48%), 17 positive blue jays of 77 tested (22%), and no positive common ravens of 4 tested.

Due to concerns about possible impacts of WNV on other wildlife species, in 2003 the WDNR and the MCRF tested tissues for the presence of WNV in other selected species: 69 bald eagles, 43 other raptors, 129 perching birds, 25 waterbirds, 24 upland game birds including mourning doves, and 32 mammals. WNV was detected in 11 of 322 non-corvid tissue samples tested. Evidence of the virus was found in the tissues of 1 bald eagle, 2 (of 11) red-tailed hawks, 1 (of 17) robins, 1 (of 2) bluebirds, 1 (of 43) common grackles, 1 (of 6) cedar waxwings, 1 (of 9) woodpeckers, and 2 (of 5) chickadees. Cotton-tailed rabbits, gray squirrels, gray fox, muskrat, and little and big brown bats were tested for WNV in their tissues. Only 1 (of 8) brown bats had WNV in the tissues. Results for each county are listed below. A report detailing 2003 WNV exposure for a variety of species, based on serologic antibody measurement, will be included in the August Surveys Report.

## **2003 West Nile Virus Tissue Surveillance Results**

<b>County</b>	<b>Species Tested</b>	<b>WNV Positive/# Sampled</b>
Adams	American crow	5/6
	Blue jay	1/2
	Golden eagle	0/1
	Bald eagle	0/1
	Cedar waxwing	0/1
	Little brown bat	0/1
Ashland	American crow	1/3
	Common grackle	0/1
	American pine marten	0/1
Barron	American crow	2/4
	Blue jay	0/3
	Downy woodpecker	1/1
	Cardinal	0/1
	House finch	0/1
	Common grackle	0/1
Bayfield	Bald eagle	0/1
	Robin	0/1
Brown	American crow	2/6
	Blue jay	0/1
	Double crested cormorant	0/2
	Coopers hawk	0/1
	Sharp-shinned hawk	0/1
	Kestrel	0/1
	Robin	0/1

Buffalo	Common grackle	0/2
	American crow	0/2
	Red-tailed hawk	0/1
	Mourning dove	0/1
	House finch	0/1
Burnett	American crow	2/2
	Blue jay	0/1
	Bald eagle	0/4
Calumet	American crow	4/6
Chippewa	American crow	5/6
	Blue jay	0/2
Clark	American crow	0/1
	Great horned owl	0/1
Columbia	American crow	3/3
	Bald eagle	0/4
	Kestrel	0/1
	Great horned owl	0/1
	Gray squirrel	0/1
Crawford	Cotton-tailed rabbit	0/1
	Blue jay	0/1
Dane	American crow	7/24
	Blue jay	0/2
	Coopers hawk	0/2
	Red-tailed hawk	0/4
	Great horned owl	0/2
	Barred owl	0/1
	Mourning dove	0/1
	Black-capped chickadee	0/2
	Robin	0/1
	House finch	0/1
	Common grackle	0/7
	Little brown bat	0/1
	Gray squirrel	0/4
Dodge	American crow	1/6
	Blue jay	0/2
	Sandhill crane	0/1
	Barn swallow	0/1
	Robin	0/2
	Eastern meadowlark	0/1
Door	Blue jay	0/1
	Double-crested cormorant	0/2
	Yellow-bellied sapsucker	0/1
	Eastern bluebird	1/1
	American robin	0/1
Douglas	American crow	0/2
	Bald eagle	0/2
	Ring-billed gull	0/7
	Common tern	0/2
Dunn	American crow	5/9
	Blue jay	1/1
	American robin	1/1
Eau Claire	American crow	13/26
	Blue jay	1/3
	Bald eagle	0/1
	Goldfinch	0/1
	Common grackle	0/1
	White-tailed deer	0/1

Florence	Bald eagle	0/2
Fond du Lac	American crow	1/3
	Blue jay	0/2
Forest	Ruby throated hummingbird	0/1
	House finch	0/1
	Common grackle	0/1
Grant	Red-tailed hawk	0/1
	Bald eagle	0/1
Green	Peregrine falcon	0/1
	Common grackle	1/1
	American crow	1/2
	Eastern phoebe	0/1
Green Lake	Common grackle	0/1
	Blue jay	1/2
	Chimney swift	0/1
Iowa	Ruby throated hummingbird	0/1
	American crow	1/1
	Bald eagle	1/3
Iron	Red-tailed hawk	0/1
	American crow	0/1
	Green heron	0/1
Jefferson	Ruffed grouse	0/2
	American crow	0/3
	Wood thrush	0/1
Juneau	Blue jay	0/1
	Bald eagle	0/1
Kenosha	American crow	5/7
	Blue jay	0/2
	Great blue heron	0/2
	Common grackle	0/3
	Little brown bat	0/1
Kewaunee	Eastern kingbird	0/1
La Crosse	American crow	5/13
	Blue jay	1/2
	Common grackle	0/1
Lafayette	Kestrel	0/1
Langlade	Kestrel	0/1
	Mourning dove	0/2
	American robin	0/1
Lincoln	American crow	0/2
	Blue jay	0/2
	Bald eagle	0/5
	American woodcock	0/1
	Big brown bat	0/1
Manitowoc	American crow	1/1
	Blue jay	0/3
	Eastern wild turkey	0/1
	Great horned owl	0/1
	Common flicker	0/2
	Common grackle	0/2
	Gray squirrel	0/1
Marathon	American crow	3/8
	Blue jay	0/1
	Great blue heron	0/1
	Bald eagle	0/2
	Mourning dove	0/1
	American catbird	0/1

Marinette	Red-eyed vireo	0/1
	House finch	0/1
	Common grackle	0/1
	Gray squirrel	0/1
	American crow	1/4
	Common raven	0/2
	Red-tailed hawk	0/1
	Bald eagle	0/4
	Mourning dove	0/1
	Rose-breasted grosbeak	0/2
Marquette	Red-winged blackbird	0/1
	American crow	0/1
	Bald eagle	0/1
Menominee	Little brown bat	1/1
	Red-tailed hawk	1/1
Milwaukee	American crow	2/6
	Blue Jay	0/3
	Kestrel	0/2
	Mourning dove	0/1
	Common yellowthroat	0/1
	Common grackle	0/1
	Red-winged blackbird	0/1
	Gray squirrel	0/3
	American crow	2/2
	Blue jay	0/1
Monroe	Great horned owl	0/1
	Common grackle	0/1
	American crow	1/1
Oconto	Blue jay	0/2
	Sharp-shinned hawk	0/2
Oneida	American crow	3/5
	Common raven	0/1
	Bald eagle	0/16
	Ruffed grouse	0/2
	Mourning dove	0/1
	Pileated woodpecker	0/1
	American robin	0/1
	Mourning warbler	0/1
	Rose-breasted grosbeak	0/1
	Common grackle	0/1
Outagamie	American crow	9/22
	Blue jay	0/3
	Common raven	0/1
	Kestrel	0/2
	Mourning dove	0/1
	American cardinal	0/1
	American robin	0/1
	Mourning warbler	0/1
	Rose-breasted grosbeak	0/1
	Common grackle	0/1
Ozaukee	American crow	4/8
	Blue jay	1/2
	Little brown bat	0/1
Pepin	American crow	0/1
	Gray fox	0/2
Pierce	American crow	1/2
	Blue jay	1/1

Polk	Common grackle	0/1
	Trumpeter swan	0/1
Portage	American crow	5/9
	Blue jay	1/3
Racine	Goshawk	0/1
	Coopers hawk	0/1
	American crow	4/5
	Blue jay	1/3
	Sora rail	0/1
	Mourning dove	0/1
	Common grackle	0/1
Richland	Gray squirrel	0/1
	Eastern wild turkey	0/1
	Sandhill crane	0/1
	Lincoln sparrow	0/1
Rock	American crow	4/15
	Blue jay	1/1
	Ruby-throated hummingbird	0/2
	Black-capped chickadee	1/1
	Common grackle	0/2
Rusk	Gray squirrel	0/1
	American crow	0/1
Sauk	American crow	1/3
	Blue jay	3/4
	Coopers hawk	0/1
	Bald eagle	0/5
	Great horned owl	0/1
	Gray squirrel	0/2
	Muskrat	0/1
	American crow	1/5
Sawyer	Bald eagle	0/1
	Black-billed cuckoo	0/1
	Northern flicker	0/1
	Yellow-bellied sapsucker	0/1
	American robin	0/1
	Cedar waxwing	0/1
	Chipping sparrow	0/1
	American crow	3/4
	Rough-legged hawk	0/1
	Red-tailed hawk	0/1
Shawano	Red-shouldered hawk	0/1
	Bald eagle	0/1
	Mourning dove	0/1
	American crow	5/10
	Blue jay	0/2
Sheboygan	Mourning dove	0/1
	Tree swallow	0/1
	Willow flycatcher	0/1
	American robin	0/1
	Red-winged blackbird	0/2
	American crow	4/5
St Croix	Blue jay	1/1
	House finch	0/3
	Little brown bat	0/1
Taylor	Blue jay	0/1
	Common grackle	0/1
Trempealeau	American crow	1/1

	Bald eagle	0/1
Vernon	Great blue heron	0/1
	Gray squirrel	0/1
Vilas	American crow	0/1
	Bald eagle	0/9
	Common grackle	0/1
Walworth	American crow	5/6
	Blue jay	1/4
	Eastern wild turkey	0/1
	Great horned owl	0/1
	American robin	0/1
	Common grackle	0/1
Washburn	American crow	1/1
	Bald eagle	0/1
	Eastern bluebird	0/1
	Scarlet tanager	0/1
	House finch	0/1
	Common Grackle	0/1
Washington	American crow	1/4
	Blue jay	0/1
	Great blue heron	0/1
	Mourning dove	0/1
	Black-capped chickadee	1/1
	American cardinal	0/1
	Goldfinch	0/1
Waukesha	American crow	4/11
	Blue jay	1/5
	Mourning dove	0/1
	Black-billed cuckoo	0/1
	American robin	0/4
	Cedar waxwing	0/1
	Rose-breasted grosbeak	0/1
	Indigo bunting	0/1
	Goldfinch	0/1
	Red-winged blackbird	0/1
	Eastern chipmunk	0/1
Waupaca	American crow	3/3
	Blue jay	0/3
	Common nighthawk	0/1
	Ruby-throated hummingbird	0/1
	Barn swallow	0/1
	American cardinal	0/1
Waushara	American crow	0/1
	Blue jay	0/1
	Bald eagle	0/1
	Common yellowthroat	0/1
Winnebago	American crow	7/12
	Blue jay	1/2
	Great blue heron	0/1
	Sharp-shinned hawk	0/1
	Sora rail	0/1
	Mourning dove	0/1
	Swainson's thrush	0/1
	Cedar waxwing	1/1
	American cardinal	0/1
	Goldfinch	0/1
	Common grackle	0/5

Wood	American crow	6/7
	Blue jay	1/2
	Sharp-shinned hawk	0/1
	Red-tailed hawk	1/1
	Bald eagle	1/2
	Kestrel	0/1
	Eastern wild turkey	0/1
	American robin	0/1
	Little brown bat	0/1
	Cotton-tailed rabbit	0/1
	Gray squirrel	0/1